LISTING OF THE CLAIMS
(including amendments, if any)

1. **(currently amended)** A method of processing a database query **on a computer**, the query including an expression, the method including:

> **the computer** performing expression optimization on the expression;

> **the computer** performing further query optimization to produce a result;

> **the computer** saving the result in a **machine** memory;

> **the computer** performing expression optimization before further query optimization; and

> where the expression includes a sub-expressions ("SE"), and where the expression optimization includes:

>> **the computer** representing the query as a tree structure;

>> **the computer** representing the expression in the tree structure as a parent node having a first child node and a second child node;

>> where the first child node represents the sub-expression;

>> where the second child node represents the portion of the expression that is not the sub-expression; and

>> where the parent node represents an operation between the first child node and the second child node;

>> **the computer** determining that the second child node represents the constant 0 and that the parent node represents an arithmetic operation selected from the group consisting of addition and subtraction; and

>> in response, **the computer** removing the parent node and its children from the tree structure and inserting the first child node in its place.

2-6. (cancelled)

7. (original) The method of claim 1, where the query includes an assignment list clause and where one or more of the expressions are in the assignment list clause.

8. (original) The method of claim 1, where the query includes a WHERE clause, and where one or more of the expressions are in the WHERE clause.

9.   (original) The method of claim 1, where further query optimization includes:

   determining a satisfiability of the database query.

10.   (original) The method of claim 1, where further query optimization includes:

   determining a transitive closure of the database query.

11.   (original) The method of claim 1, where further query optimization includes:

   determining one or more plans for executing the query.

12.   (original) The method of claim 11, where one of the one or more plans includes:

   scanning a table to locate rows that satisfy one or more conditions; and

   summing one or more columns in the rows that satisfy the one or more conditions.

13.   (original) The method of claim 1, where further query optimization includes:

   selecting an optimal plan from executing the database query.

14.   (original) The method of claim 1, where further query optimization includes two or more optimizations selected from the group consisting of:

   determining a satisfiability of the database query;

   determining a transitive closure of the database query;

   determining one or more plans for executing the query; and

   selecting an optimal plan from executing the database query.

15.   **(currently amended)** A computer program, stored on a tangible storage medium, for use in processing a database query, the query including an expression, the computer program including executable instructions that cause a computer to:

> perform expression optimization on the expression;
>
> perform further query optimization to produce a result;
>
> save the result in a **machine** memory;
>
> where the expression includes a sub-expression ("SE"), where expression optimization is performed before further query optimization, and where the computer program includes executable instructions that cause a computer to:
>
>> represent the query as a tree structure;
>>
>> represent the expression in the tree structure as a parent node having a first child node and a second child node;
>>
>> where the first child node represents the sub-expression;
>>
>> where the second child node represents the portion of the expression that is not the sub-expression; and
>>
>> where the parent node represents an operation between the first child node and the second child node;
>>
>> determine that the second child node represents the constant 0 and that the parent node represents an arithmetic operation selected from the group consisting of addition and subtraction; and
>>
>> in response, remove the parent node and its children from the tree structure and insert the first child node in its place.

16-20. (cancelled)

21.   (original) The computer program of claim 15, where the query includes an assignment list clause and where one or more of the expressions are in the assignment list clause.

22.   (original) The computer program of claim 15, where the query includes a WHERE clause, and where one or more of the expressions are in the WHERE clause.

23.   (original) The computer program of claim 15, where further query optimization includes:

    determining a satisfiability of the database query.

24.   (original) The computer program of claim 15, where further query optimization includes:

    determining a transitive closure of the database query.

25.   (original) The computer program of claim 15, where further query optimization includes:

    determining one or more plans for executing the query.

26.   (original) The computer program of claim 25, where one of the one or more plans includes:

    scanning a table to locate rows that satisfy one or more conditions; and

    summing one or more columns in the rows that satisfy the one or more conditions.

27.   (original) The computer program of claim 15, where further query optimization includes:

    selecting an optimal plan from executing the database query.

28.   (original) The computer program of claim 15, where further query optimization includes two or more optimizations selected from the group consisting of:

    determining a satisfiability of the database query;

    determining a transitive closure of the database query;

    determining one or more plans for executing the query; and

    selecting an optimal plan from executing the database query.

29.   (**currently amended**) A database system including:

    a massively parallel processing system including:

    one or more nodes;

    a plurality of CPUs, each of the one or more nodes providing access to one or more
        CPUs;

    a plurality of data storage facilities each of the one or more CPUs providing access to one
        or more data storage facilities;

    a ~~process~~ **computer program** for execution on the massively parallel processing system
        for processing a database query, the query including an expression, the ~~process~~

computer program including **executable instructions that cause one or more of the CPUs to**:

performing expression optimization on the expression;

performing further query optimization to produce a result;

saveing the result in a memory;

where the expression optimization is performed before the further query optimization; and

where the expression includes a sub-expression ("SE"), and where expression optimization includes:

representing the query as a tree structure;

representing the expression in the tree structure as a parent node having a first child node and a second child node;

where the first child node represents the sub-expression;

where the second child node represents the portion of the expression that is not the sub-expression; and

where the parent node represents an operation between the first child node and the second child node;

determining that the second child node represents the constant 0 and that the parent node represents an arithmetic operation selected from the group consisting of addition and subtraction; and

in response, removing the parent node and its children from the tree structure and inserting the first child node in its place.

30-34. (cancelled)

35. (original) The database system of claim 29, where the query includes an assignment list clause and where one or more of the expressions are in the assignment list clause.

36. (original) The database system of claim 29, where the query includes a WHERE clause, and where one or more of the expressions are in the WHERE clause.

37. (original) The database system of claim 29, where further query optimization includes:
determining a satisfiability of the database query.

38. (original) The database system of claim 29, where further query optimization includes:

  determining a transitive closure of the database query.

39. (original) The database system of claim 29, where further query optimization includes:

  determining one or more plans for executing the query.

40. (original) The database system of claim 39, where one of the one or more plans includes:

  scanning a table to locate rows that satisfy one or more conditions; and

  summing one or more columns in the rows that satisfy the one or more conditions.

41. (original) The database system of claim 29, where further query optimization includes:

  selecting an optimal plan from executing the database query.

42. (original) The database system of claim 29, where further query optimization includes two or more optimizations selected from the group consisting of:

  determining a satisfiability of the database query;

  determining a transitive closure of the database query;

  determining one or more plans for executing the query; and

  selecting an optimal plan from executing the database query.